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A New Risk Management Tool for Crop Producers

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A New Risk Management Tool for Crop Producers

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A NEW CROP insurance product, "Margin Protection," was introduced by the USDA this fall. The product provides corn and soybean producers in Iowa (and rice and wheat producers in selected states) with a margin guarantee. The product was developed by economists at Iowa State and Watts and Associates in Bozeman, Montana. The sales closing date for MP in Iowa is September 30.

Table 1. Margin protection actuarial data

Value Type	Values
Projected crop price	See Price Discovery Section
Expected county yield	179.9
Expected revenue per acre	$716.00
Expected costs per acre	$319.17
Expected margin per acre	$396.83
Trigger at 80% coverage level	$317.47
Total premium at 80% coverage level	$39.89
Producer premium at 80% coverage level	$17.95

How it works

The expected margin is calculated in September of the year prior to the year the crop will be grown. Expected revenue is calculated much like existing revenue products—expected costs are calculated based on ISU extension crop budgets for corn and soybeans and input prices (such as fertilizer) are taken from the relevant futures markets. Once the expected margin is calculated, the producer chooses a coverage level and this is multiplied by the expected margin to arrive at the trigger margin. Producers will be indemnified for any yield or price reduction, or input cost increase, that causes actual margins to fall below the trigger margin.

Why was it developed?

In the period after the crop price boom that started in 2006, crop producers became interested in obtaining a higher level of coverage than could be offered under traditional products. This was needed because land rents increased as a proportion to total costs. Existing products sometimes did not offer enough protection to ensure that cash rents plus operating costs were covered. Margin Protection is a response to this need.

To see why MP provides higher coverage, consider this simplified example. A producer expects a revenue of $1,000 per acre and has non-land production costs of $500 per acre. A traditional Revenue Protection (RP) policy with a 75 percent coverage level will provide a guarantee of $750. This $750 will cover production costs of $500 plus an additional $250 to pay for land costs. A 75 percent MP policy will guarantee the $500 production costs and provide additional coverage of $375 (75 percent of the expected $500 margin) to cover land costs.

Now suppose that corn prices fall by 10 percent in the example described above. This will not trigger an indemnity on RP even at the maximum 85 percent level, but it will generate a 5 percent indemnity on an 85 percent MP policy. This is true because a 10 percent reduction in prices will cause the expected margin to fall by 20 percent.

In order to protect against moral hazard at these extreme coverage levels, and to ensure affordable premium rates, MP margins and indemnities are calculated at the county level. If the product design stopped at the county level, producers would be exposed to yield damage that impacted their operation but does not cause a reduction in county revenues. MP gets around this problem by allowing the producer to purchase an individual insurance policy such as RP. If both MP and RP policies result in a claim, the RP indemnity is paid in full and this amount is subtracted from the MP indemnity. The MP premium rates are, of course, adjusted to reflect this possible reduction in the MP indemnity.

How much does it cost?

The quote shown in Table 1 is an actual MP quote for corn in Calhoun County in 2015. This quote assumes that MP is purchased as a stand-alone

product and it does not include the MP premium reduction that the producer will receive if they also purchase an individual insurance product such as RP. The quote of $17.95 per acre is for 80 percent coverage. The premium quote increases to $33.12 at 90 percent MP coverage and falls to $10.25 at 70 percent MP coverage.

The premium quote for soybeans in Calhoun is shown in Table 2. The $6.52 per acre quote is for an 80 percent trigger margin. The premium falls to $2.92 at 70 percent coverage and increases to $14.39 at 90 percent coverage.

The $39.89 soybean "Total Premium" quote is the amount that this MP policy can be expected to pay out on average. This means that the producer is paying $17.95 to buy an expected payout of $39.89. This $20.94 difference is due to a government subsidy.

Table 2. Margin protection actuarial data

Value Type	Values
Projected crop price	See Price Discovery Section
Expected county yield	49.8
Expected revenue per acre	$435.75
Expected costs per acre	$163.99
Expected margin per acre	$271.76
Trigger at 80% coverage level	$217.41
Total premium at 80% coverage level	$14.48
Producer premium at 80% coverage level	$6.52

Who should buy this product?

Producers who sign new leases in late summer of the year prior to planting and are concerned about increases in input costs or reductions in output revenue between September of one year and October of the following year will find MP to be a useful risk management tool. This will be particularly true for producers who lock in a cash rent that is close to the expected margin. Producers who farm in many parts of the county and who can reasonably expect their whole farm yield to mirror the county yield will also find the product to be of value.

Should producers add a supplemental policy?

The six month time lag between when MP is sold in September and RP is sold in March gives the producer a chance to decide on whether to purchase a supplemental RP policy. If market prices have fallen by March, then the MP policy will be "in the money" and any further reductions in yields or prices will add to expected indemnities. The high likelihood of an MP indemnity should reduce the need to purchase an additional individual policy. If, however, prices have rallied, then the MP policy will be "out of the money" and the producer will need to decide if they need to upgrade their revenue protection level with a March policy.

Further Information

The USDA offers a detailed description here *http://www.rma.usda.gov/policies/mp/*

Developers of the product have built a premium estimator that is available here. *http://marginprotection.com/*

A PowerPoint presentation is available from the author at *dhayes@iastate.edu*. ■

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